
BIOMONITORING IN RI

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A quarterly newsletter published by the Rhode Island Department of Health (HEALTH) to provide information on trends and issues regarding toxic substances and biomonitoring activities in Rhode Island.

Biomonitoring: A Useful Tool for Public Health

By Mike DiMatteo

Biomonitoring, or biological monitoring, measures environmental chemicals in the human body. To do this, scientists use a biological matrix (specimen) such as blood, urine, serum, saliva, or tissue and employ sophisticated equipment to determine precise levels. Then, by comparing these levels to normal levels found in the general population, and by comparing them to levels recognized by the medical community to cause harm, scientists and public health officials are able to make more accurate and effective decisions to prevent illness and protect the public.

Program at the NCEH, CDC

Currently, one of the top facilities in the world for conducting this testing is located at the National Center for Environmental Health at the Centers for Disease Control in Atlanta, Georgia. At this facility, scientists measure at least 200 environmental chemicals (or their breakdown products). Some of these chemicals include lead, mercury, arsenic, many pesticides, polychlorinated biphenyls (PCBs), and many other substances that are known to be dangerous to health.

The facility also develops instruments and tests for biomonitoring and helps laboratories around the world standardize and improve their biomonitoring programs. Finally, test results are used to assist federal and state agencies in protecting the public health during emergencies involving chemicals, investigate possible exposures of people to dangerous chemicals, and to study the effects of chemicals on health.

The benefits of biomonitoring are many. Results from biomonitoring are used to discover which groups of people are in the most danger from environmental chemicals. With these discoveries, researchers and health officials can then decide on steps for protecting them.

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Biomonitoring: The Community Component

By Dhitinut Ratnapradipa

Have you ever thought about how many of our daily activities involve exposure to toxic substances? More importantly, how well does the general public understand which toxic substances present the greatest human health risks, and what behavioral changes can be made to avoid or minimize exposures to these toxic substances?

HEALTH is currently using funds from a Centers for Disease Control (CDC) Grant Program to develop a plan for biomonitoring. If awarded continued funding in 2003, this plan may increase the State's ability to reduce

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ENVIRONMENTAL PUBLIC HEALTH TRACKING SYSTEM

In July, The Centers for Disease Control (CDC) announced a new grant program opportunity to health agencies in all States, called the National Environmental Public Health Tracking System Program. The purpose of this program is to link and report health effects data with human exposure data and environmental hazard data. The program will specifically address chronic diseases and non-infectious health effects that may be related to exposure to chemicals, biologic toxins, and other agents.

The Division of Environmental Health at HEALTH has applied for this grant. Building on HEALTH's model for the childhood lead program, and on a yet-to-be determined adult oriented system, they propose to begin by focusing on coalition building and identifying needs. It is anticipated that this program will include connections to the Biomonitoring program, also at HEALTH.

The review and award process for this competitive grant is expected to be completed by September 30, 2002.

Results from biomonitoring are also used to gauge the effectiveness of treatment actions, initiated as a result of a measured or documented exposure. By measuring chemicals in people before and after taking actions, public health officials determine whether or not their programs are actually helping people.

Biomonitoring provides public health officials with additional information on the *effect* of a chemical found in the environment. Environmental data alone cannot always provide a true measurement of people's actual uptake of chemicals. By measuring the levels, officials are able to determine whether they are actually getting into people and devise a more effective action plan.

Finally, biomonitoring improves the emergency response to unknown illnesses among many people. By testing these people, data can be used to help pinpoint the culprit.

Biomonitoring at HEALTH

Since September 2001, HEALTH has participated in a Centers for Disease Control (CDC) Biomonitoring Planning Grant Program. The purpose of this program is to prepare for the implementation of a biomonitoring program at the State level.

The first step of this project is to assess the *need* for biomonitoring. This step is crucial in order to determine which environmental chemicals most affect our population. To help with this, a Scientific Advisory Board, made up of professionals from the medical and academic community, has been formed. Two meetings have been held and another is being planned. The purpose of these meetings is to solicit valuable scientific information on the testing of chemicals of greatest concern.

In addition to gathering input from this advisory board, the Biomonitoring Assessment Team, a group of public health professionals from HEALTH Laboratories and Environmental Health responsible for the overall project, is conducting a community outreach component. For more details, see the article on Page 1 titled "Biomonitoring: The Community Component".

After these assessments are completed, the Assessment Team will develop a plan for testing considering such factors as current laboratory capacity and staffing issues, accessibility to specimens and uses of the data (public health response). ★

the community's risk of exposures and to expand the body of knowledge that may yield answers to these important questions.

A biomonitoring program will benefit the community in several ways. First, it helps identify which toxic substances pose the greatest health threat to Rhode Islanders. Secondly, it helps manage risk by effectively communicating risk information for all concerned parties, including how to reduce or prevent exposures to these substances. Finally, biomonitoring data becomes a useful knowledge base for future health policy decisions.

For a biomonitoring program to be effective, the community must play an important role in the planning process. Their input helps to identify toxicants affecting different groups. For example, because some people eat large amounts of fish, they may be exposed to mercury, a substance that is known to have significant health effects.

Community involvement is also important once a biomonitoring program has been established. Since biomonitoring relies heavily on the collection of human specimens, it becomes increasingly important to educate citizens so that they will come to understand its purpose and benefits. Through this education, they may become more motivated to willingly participate in studies. They will also be better able to express their ideas and concerns about toxic chemical hazards in RI.

One way to effectively involve the community is for HEALTH to hold community conferences to both educate citizens and solicit their input. The Risk Assessment Team at HEALTH is currently making preparations for a community conference co-sponsored by Clean Water Action. This conference will be held on September 28, 2002 from 10:00 a.m. to 2:00 p.m. at URI's Providence Campus in the Shepherd Building. The purpose of the conference is multi-faceted, which includes setting the foundation for community involvement and cooperation and information gathering. For details regarding this community conference, please contact Dhitinut Ratnapradipa at (401) 222-7764, dhitinutr@doh.state.ri.us, or Sheila Dormody at (401) 331-6972, sdormody@cleanwater.org ★

CONTACT INFORMATION

Mike DiMatteo- Laboratory Coordinator, Biomonitoring (401) 222-5588, michael_dimatteo@doh.state.ri.us
Dhitinut Ratnapradipa- Project Risk Coordinator, Biomonitoring (401) 222-7764, dhitinutr@doh.state.ri.us
Gregory Hayes, Dr. P.H. – Associate Director, Laboratories (401) 222-5554, gregH@doh.state.ri.us